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THE LONGEVITY OF BRAIN-WORKERS.

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Presented by the Author

THOMAS HUGHES, in his life of "Alfred the Great," makes a statement that "the world's hardest workers and noblest benefactors have rarely been long-lived."

That any intelligent writer of the present day, and especially a writer who, like Mr. Hughes, is a thoughtful student of mental hygiene, should make a statement so absolutely untrue, shows how hard it is to kill an old superstition.

The remark is based on the mischievous theory, which — against the clearest evidence of general observation — has been held for centuries, that the mind can be used only at the injurious expense of the body. This theory has been something more than a mere popular prejudice; it has been a professional dogma, and has inspired nearly all the writers on hygiene since medicine has been a science. On the basis of this theory, intellectual and promising youth have been dissuaded from entering brain-working professions; and thus, much of the choicest genius has been lost to the world; students in college have abandoned plans of life to which their tastes inclined, and gone to the farm or workshop; authors, scientists, and investigators in the several professions have thrown away the accumulated experience of the best half of life, and retired to pursuits as uncongenial as they were profitless. The superstition, for it hardly deserves to be called a theory, has therefore wrought immense evil specifically by depriving the world of the services of some of its best endowed natures, and generally by fostering a habit of accepting statement for demonstration.

Between 1864 and 1866, while preparing a thesis for graduation, I obtained statistics on the general subject of the relation of occupation to health and longevity that convinced me of the error of the accepted teachings in regard to the effect of mental labor. These statistics, which were derived from the registration reports of this country and of England, and from a study of the lives of many prominent brain-workers, were incorporated in an essay on the subject, that was delivered before an Association of Army and Navy Surgeons in New Orleans in 1863, and afterwards published in the "Hours at Home" Magazine. The views I then advocated, and which I enforced by statistical evidence, were: —

1st. That the brain-working classes — clergymen, lawyers, physicians,

merchants, scientists and men of letters, — lived very much longer than the muscle-working classes.

2d. That those who followed occupations that called both muscle and brain into exercise, were longer-lived than those who lived in occupations that were purely manual.

3d. That the greatest and hardest brain-workers of history have lived longer on the average than brain-workers of ordinary ability and industry.

4th. That clergymen were longer-lived than any other great class of brain-workers.

5th. That longevity increased very greatly with the advance of civilization; and that this increase was too marked to be explained merely by improved sanitary knowledge.

6th. That although nervous diseases increased with the increase of culture, and although the unequal and excessive excitements and anxieties attendant on mental occupations of a high civilization, were so far both prejudicial to health and longevity, yet these incidental evils were more than counterbalanced by the fact that fatal inflammatory diseases have diminished in frequency and violence in proportion as nervous diseases have increased; and also that brain-work is, *per se*, healthful and conducive to longevity.

Many of these views have since received various and powerful confirmation, and by a number of independent observers.[1] The statistics on this subject I have endeavored to use without abusing them; to draw from them only those lessons that they are really capable of teaching. Among those classes who live mainly by routine and muscular toil (mechanics, artisans, laborers, etc.) change of occupation is the rule rather than the exception, especially in this country; and any statistics of mortality derived from the Registration Reports, are, so far as these classes are concerned, of but little value in the study of the relative effects of the different occupations on health and longevity. Another important complication arises from the fact that certain occupations, as clerkships, positions in factories, teaching, etc., are followed almost exclusively by the young and middle-aged; while other callings, as judgeships, are filled only by those in middle and advanced life. Another difficulty arises from the fact that some important occupations, as journalism, for example, are adopted only by a limited number; and the number in them who annually die is too small to afford any basis for comparison. But this generalization is, I am persuaded, admissible, that the greater majority of those who die in any one of the three great professions — law, theology, and medicine — have, all their lives, from twenty-one upwards, followed that profession in which they died. The converse generalization, that the great majority of those who die in the

[1] Those who desire to obtain the detailed facts on this subject are referred to my Essay in *Hours at Home* (Oct. 1867); to my series of papers on "Hygiene for Students," in the *College Courant* (1869); to my *Home Physician*, p. 380; to Dr. Derby's Registration Reports of Massachusetts and Farr's Registration Reports of England (Supplement to 22d); to Dr. Edward Jarvis's Papers on the "Increase of Human Life," in *Atlantic Monthly*, (Oct., Nov., and Dec., 1869); to Dr. Elam's *Physician's Problems;* Hon. B. G. Northrup's *Report of the Connecticut Board of Education* (1869, pp. 61–74); and to the Reports of the Life Insurance Company for Clergymen (Bible House, N. Y.).

muscle-working avocations, have all their lives followed some kind of muscle-working employment, however frequently they may have changed from one to another at different periods, is also true. Very few who once fairly enter theology, medicine, or law ever permanently change to a purely physical calling; and, on the other hand, the number of those who begin life as farmers, laborers, and mechanics, and end it as lawyers, physicians, or clergymen, is quite limited, even in the United States, where every man has a better chance to follow the bent of his genius than in any other country.

A comparison, therefore, of the longevity of the professional and of the muscle-working classes, as derived from Registration reports, such as I have made, is quite justifiable. The value of this comparison would be vitiated if it could be proved that those who enter the professions are originally healthier and stronger, and come from better stock than those who enter physical avocations; but in this country, the practice has been to allow the more delicate members of a family to enter a profession, whilst the tough and hardy work on the farm or learn a trade. Here, as in Europe, there is growing up a distinctively intellectual class who live solely by brain-work; it is, however, not from this class alone, but from the farming, mercantile, and artisan class that the ranks of the professions are filled.

Great Longevity of Great Men. I have ascertained the longevity of five hundred of the greatest men in history. The list I prepared includes a large proportion of the most eminent names in all the departments of thought and activity.

It would be difficult to find more than two or three hundred illustrious poets, philosophers, authors, scientists, lawyers, statesmen, generals, physicians, inventors, musicians, actors, orators, or philanthropists, of world-wide and immortal fame, and whose lives are known in sufficient detail, that are not represented in the list. My list was prepared, not for the average longevity, but in order to determine at what time of life men do their best work. It was, therefore, prepared with absolute impartiality; and includes of course, those who, like Byron, Raphael, Pascal, Mozart, Keats, etc., died comparatively young. Now the average age of those I have mentioned, I found to be 64.20.

The average age at death at the present time, of all classes of those who live over twenty years, is *about fifty*. Therefore, the greatest men of the world have lived longer, on the average, than men of ordinary ability in the different occupations by fourteen years; six years longer than physicians and lawyers; nineteen or twenty years longer than mechanics and day laborers; from two to three years longer than farmers; and a fraction of a year longer than clergymen, who are the longest-lived class in our modern society. The value of this comparison is enforced by the consideration that longevity has increased with the progress of civilization, while the list I prepared represents every age of recorded history. A few years since I arranged a select list of one hundred names, comprising the most eminent personages, and found that the average longevity was *over seventy years*. Such an investigation any one can pursue; and I am sure that any chronology, comprising from one to five hundred of the most eminent per-

sonages in history, at any cycle, will furnish an average longevity of from sixty-four to seventy years. Madden, in his very interesting work, "The Infirmities of Genius," gives a list of two hundred and forty illustrious names, with their ages at death. The average I found to be sixty-six and a fraction.

In view of these facts, it may be regarded as established that "the world's hardest workers and noblest benefactors" have usually been very long-lived.

CAUSES OF THE GREAT LONGEVITY OF BRAIN-WORKERS.

The full explanation of the superior longevity of the brain-working classes, would require a treatise on the science of sociology, and particularly of the relation of civilization to health. The leading factors, accounting for the long life of those who live by brain-labor, are as follows:—

1. *The inherent and essential healthfulness of brain-work.* To work is to grow; and growth, except it be forced, is always healthful. It is as much the function of the brain to cerebrate, as of the stomach to digest; and cerebration, like digestion, is normal, physiological, and healthful. In all organizations of force, the exercise of force develops more force; work evolves strength for work. A plant that is suffered to bud and bloom, is more sturdy and longer lived than the plant that is kept from the light, or trimmed of all its blossoms. By thinking, we gain the power to think; functional activity, within limits, tends to vigor and the self-preservation of an organ, and of the body to which the organ belongs. The world has been taught that the brain can be developed only at the expense of the other organs of the body; granting that brain-work strengthens the brain itself, the rest of the body is impoverished thereby — hence disease, and early death. But recent investigations in cerebro-physiology, seem to indicate that the centres of thought in the anterior region of the brain, are also the centres of muscular motion; and hence it may perhaps be inferred that to develop the brain may be one method of developing the muscles.[1] It is certain that the brain-working classes are, on the average, well developed muscularly; and in size and weight are superior to the purely muscle-working classes.

2. *Brain-workers have less worry, and more comfort and happiness than muscle-workers.* Worry is the converse of work; the one develops force, the other checks its development, and wastes what already exists. Work is growth; worry is interference with growth. Worry is to work what the chafing of a plant against the walls of a greenhouse is to limitless expansion in the free air. In the successful brain-worker, worry is transferred into work; in the muscle-worker, work too often degrades into worry. Brain-work is the highest of all antidotes to worry; and the brain-working

[1] I here refer to the experiments of Hitzig, of Berlin, in the electrical irritation of the brains of living animals. These experiments have been confirmed by a variety of experiments undertaken by Ferrier, of London, by myself, and other observers. I use the word centre, in an experimental sense; and the above theory of the relation and definition of the thought centres, and muscle centres, is merely a provisional suggestion. (See *Archives of Electrology and Neurology*, May, 1874, for a record of my own experiments, with remarks, and also a general resume of facts.)

classes are therefore less distressed about many things, less apprehensive of indefinite evil, and less disposed to magnify minute trials, than those who live by the labor of the hands. To the happy brain-worker, life is a long vacation; while the muscle-worker often finds no joy in his daily toil, and very little in the intervals. Scientists, physicians, lawyers, clergymen, orators, statesmen, literati, and merchants, when successful, are happy in their work, without reference to the reward; and continue to work in their special callings long after the necessity has ceased. Where is the hod carrier, that finds joy in going up and down a ladder; and, from the foundation of the globe until now, how many have been known to persist in ditch-digging, or sewer-laying, or in any mechanical or manual calling whatsoever, after the attainment of independence? Good fortune gives good health. Nearly all the money of the world is in the hands of brain-workers; to many, in moderate amounts, it is essential to life, and in large or comfortable amount it favors long life. Longevity is the daughter of luxury. Of the many elements that make up happiness, mental organization, physical health, fancy, friends[1] and money — the last is, for the average man, greater than any other, except the first. Loss of money costs more lives than the loss of friends, for it is easier to find a friend than a fortune. Almost all muscle-workers are born, live, and die poor. To live on the slippery path that lies between extreme poverty on one side, and the gulf of starvation on the other; to take continual thought of to-morrow, without any good result of such thought; to feel each anxious hour that the dreary treadmill by which we secure the means of sustenance for a hungry household may, without warning, be closed by any number of forces, over which one has no control, to double and triple all the horrors of want and pain, by anticipation and rumination, — such is the life of the muscle-working classes of modern civilized society; and when we add to this the cankering annoyance that arises from the envying of the fortunate brain-worker who lives in ease before his eyes, we marvel not that he dies young, but rather that he lives at all.[2]

3. *Brain-workers live under better sanitary conditions than muscle-workers.* They have better food and drink, warmer clothing, breathe purer air, and are less exposed to fatal accident and the poison of disease. None of the occupations are ideal; none fulfill all the laws of health; but the muscle-working callings are all more or less unhealthy; tradesmen, artisans, common laborers, and even farmers (who combine muscle with brain-work), all, are forced to violate sanitary law, every hour of their lives; not one out of ten have enough good food; many are driven by passion and hunger to excess in the worst forms of alcoholic liquors; for a large number, sleep is a luxury of which they never have sufficient for real recuperation; healthful

[1] I do not here refer to accumulated wealth exclusively, but to income or sufficient amount to purchase comforts and luxuries. Many persons (and notably successful professional men), live out their days in comfort and luxury, although they never succeed in accumulating fortunes; to them, their reputation is wealth and capital.

[2] Those who question the truth of the above picture, are referred to any of the recently published essays and treatises on the condition of the peasantry of England. Observations show, that in our own country, not only in large cities, but in all manufacturing towns, and even in farming districts, the laboring classes are as badly circumstanced as I have stated.

air is but rarely breathed by the laboring classes of any large city; exposure to weather, that brings on fatal inflammatory diseases; accidents that cripple or kill — in all these respects, the muscle-worker, as compared with the brain-worker, is at stupendous disadvantage.

4. *The nervous temperament, which usually predominates in brain-workers, is antagonistic to fatal, acute, inflammatory disease, and favorable to long life.* Comparative statistics have shown, that those in whom the nervous temperament prevails, live longer than those in whom any one of the other temperaments prevail, and common observation confirms the statement. Nervous people, if not too feeble, may die every day. They live, but they do not die; they talk of death, and each day expect it, and yet they live. Many of the most annoying nervous diseases, especially of the functional, and some even of the structural varieties, do not rapidly destroy life, and are indeed consistent with great longevity. I have known a number of men and women who were nervous invalids for half a century or more, and died at an advanced age. It is one of the compensations of nervousness that it protects the system against those febrile and inflammatory diseases that are so rapidly fatal to the sanguine and the phlegmatic. The nervous man can expose himself to malaria, to cold and dampness, with less danger of disease, and with less danger of death if he should contract disease, than his tough and hardy brother. This was shown in the late war, when delicate, ensanguined youth, followed by the fears of friends, went forth to camp and battle, and not only survived, but grew stout amid exposures that prostrated by thousands the lumbermen of Maine, and the sons of the plough and the anvil. In the conflict with fevers and inflammations, strength is often weakness, and weakness becomes strength — we are saved through debility. Still further, my studies have shown that, of distinctively nervous diseases, those which have the worst pathology and are the most hopeless, such as locomotor ataxia, progressive muscular atrophy, apoplexy with hemiplegia, and so on, are more common and more severe, and more fatal among the comparatively strong and tough, than among the most delicate and finely organized.[1] Cancer, even, goes hardest with the hardy, and is most relievable in the nervous.

5. *Brain-workers can adapt their labor to their moods and hours and periods of greatest capacity for labor, better than muscle-workers.* In nearly all intellectual employments there is large liberty; literary and professional men especially, are so far masters of their time that they can select the hours and days for their most exacting and important work; and when from any cause indisposed to hard thinking, can rest and recreate, or limit themselves to mechanical details. Thus, there is less of the dreadful in their lives; they work when work is easy, when the desire and the power are in harmony; and, unlike their less fortunate brother in the mill or shop, or diggings, need not waste their force in urging themselves to work. Forced labor, against the grain of one's nature, is always as expensive as it is unsatisfactory; it tells on the health and on life. Even coarser natures have

[1] In my paper on "Spinal Congestion and Locomotor Ataxia," in the *Philadelphia Medical Times* for January 24 and 31, 1874, I have discussed this point in some detail.

their moods, and the choicest spirits are governed by them; and they who worship their moods do most wisely; and those who are able to do so, are the fortunate ones of the earth.

Again, brain-workers do their best work between the ages of twenty-five and forty-five; before that period they are preparing to work; after that period, work, however extensive it may be, becomes largely a matter of routine. Lawyers and physicians do much of their practice after forty; but to practice is easy, to learn is hard — and the learning is done before forty or forty-five. In all directions, the French motto holds true: "It is the first step that costs." Successful merchants lay the foundations of fortune in youth and middle life, to accumulate, and recreate, and take one's ease in old age; thus they make the most when they are doing the least, and only become rich after they have ceased trying to be so.[1]

With muscle-workers, there is but little accumulation, and only a limited increase of reward; and in old age, after their strength has begun to decline, they must, with increasing expense, work even harder than before.

To this should be added the consideration that manual employments cost as much force after they are learned as before; they can never, like many intellectual callings, become so far forth matters of routine as to require little effort. It is as hard to lay a stone wall after one has been laying it fifty years, as during the first year. The range of muscular growth and development is narrow, compared with the range of mental growth; the day-laborer soon reaches the maximum of his strength. The literary or scientific worker goes on from strength to strength, until what at twenty-five was impossible, and at thirty difficult, at thirty-five becomes easy, and at forty a pastime; and besides he has the satisfaction that the work done so easily at thirty-five and forty is incomparably better than the work done with so much difficulty at twenty-five.

6. *Comparative Longevity of the Professions.* Inasmuch as professional men do not usually change their callings, but die in the special profession in which they have lived, the vital statistics, at least of lawyers, physicians, and clergymen, become of value in determining their comparative longevity. I found in my researches made several years ago, that lawyers and physicians lived to be about fifty-seven or fifty-eight. The difference in the longevity of lawyers and physicians is but trifling. My observations in this respect have been variously confirmed by other statiscians.[2]

[1] The whole subject of, "The Relation of Age to Work," I have discussed in my pamphlet on *Legal Responsibility in Old Age*, to which I may refer those who are interested in the subject. What is there written, is preliminary to an exhaustive treatise now in the course of preparation.

[2] "An investigation made by a Berlin physician into the facts and data relating to human longevity shows the average age of clergymen to be 65; of merchants, 62; clerks and farmers, 61; military men, 59; lawyers, 58; artists, 57; and medical men, 56. Statistics are given showing that medical men in England stand high in the scale of longevity. Thus, the united ages of twenty-eight physicians who died there last year, amount to 2,354 years giving an average of more than 84 years to each. The youngest of the number was 80; the oldest, 93; two others were 92 and 89, respectively; three were 87, and four were 86 each; and there were also more than fifty who averaged from 74 to 75 years."

LONGEVITY OF THE PRECOCIOUS.

That precocity predicts short life, and is therefore a symptom greatly to be feared by parents, has, I believe, never been questioned. In poetry and in science, the idea has been variously incorporated that early brilliancy is a sure indication of a feeble constitution and an early death. This view is apparently sustained by analogy, and by facts of observation. Plants that are soon to bloom are soon to fade; those which grow slowly live long and decline slowly. Observing these facts, we naturally adhere to the opinion that the same principle should hold good as regards men, but in making the analogy we forget that it loses its force, unless the objects implicated start in life with the same potential force and are surrounded by the same external conditions. It is probable that, of two individuals with precisely similar organizations and under similar circumstances, the one that develops earlier will be the first to die; but we are not born equally endowed and similarly circumstanced. Not only are men unlike in organization, but they are very widely unlike; between the brain of Shakspeare and the brain of an idiot is a measureless gulf, and we may believe that difference of degrees may be found between the greatest and simply great men. We may believe that some are born with far more potential nervous force than others. They are millionaires in intellect as well as in money, who can afford to expend enormous means without becoming impoverished. An outlay of one hundred dollars may ruin the mechanic, working for his daily wages, while the royal merchant may spend a thousand, and barely know it. There are those who can begin their life-work earlier, toil harder and longer, than the average, and yet attain a very great age. The average age of 500 illustrious men, including those who did not exhibit any special precocity, was about 64.20. Of these 500 individuals, among whom there were twenty-five women, 150 were decidedly precocious, and their average age was 66.50, or more than two years higher than that of the list of 500, that included the precocious and non-precocious. So far as I could ascertain, the instances of extraordinary longevity were as great among the precocious as among those who were not.[1] My investigations in this department fully confirm the remark of Wieland, that "an almost irresistible impulse to the art in which they are destined to excel manifests itself in future virtuosi — in poets, painters, etc., from their earliest youth."

Not only in poetry and painting, but also in philosophy, in science, and in invention — indeed, in every great department in which human nature has displayed itself, it is true, as Milton beautifully remarks, "Childhood shows the man, as morning shows the day."

Madder, in his "Infirmities of Genius," says, that "Johnson is indeed of

[1] A contributor to the *Galaxy* for August (G. W. Winterburn) thus discourses concerning musical prodigies. Investigating the records of the past two centuries, he finds 213 recorded cases of acknowledged prodigies. None of them died before their fifteenth year, some attained the age of 103 — and the average duration of life was 58 — showing that, with all their abnormal precocity, they exceeded the ordinary longevity by about six per cent. Those who died before the age of 21 were, without exception, musicians of the very highest order.

the opinion that the early years of distinguished men, when minutely traced, furnish evidence of the same vigor or originality of mind by which they are celebrated in after-life."

The more closely I study biography, the more strongly I become convinced that the number of really illustrious geniuses who did not give early manifestations of their genius is very limited. I do not forget that some of the currently reported exceptions are very striking. Thus we are told that Chalmers at school was stupid and mischievous; that Adam Clarke, as a boy, could do nothing but roll huge stones about; that of Sir Walter Scott, his teacher, Professor Dalzell, frankly said: "Dunce he was and dunce he would remain;" that Burns, though a good athlete, showed, in his boyhood, no unusual gifts; that Goldsmith was "a plant that flowered late;" that John Howard, and Napoleon, and Wellington were, to say the least, but little remarkable at school; and that the father of Isaac Barrow is reported to have said that "if it pleased God to take away any of his sons, he prayed that it might be his son Isaac, as being the least promising of them all."

These exceptions, apparent and real, may be explained in two ways:—

1st. The stupidity attributed to men of genius may be really the stupidity of their parents, guardians, and biographers.

Men are precocious, if they are precocious at all, in the line of their genius. It is observed, as Wieland has stated, that almost all artists and musicians are recorded as precocious, the exceptions being very rare. Music and drawing appeal to the senses, attract attention, and are therefore appreciated, or at least observed by the most stupid parents, and noted even in the most superficial biographies. Philosophic and scientific thought, on the contrary, does not at once, perhaps may never, reveal itself to the senses, — it is locked up in the cerebral cells. In the brain of that dull, pale youth, who is kicked for his stupidity and laughed at for his absent-mindedness, grand thoughts may be silently growing; the plant which to-day looks stunted and dwarfed may hereafter quicken into life, rise into strength and beauty, — to give fruit and shade to many generations. Scott, for example, though he stood low in his class at school, yet very early exhibited genius as an inventor and narrator of "tales of knight-erranty, and battle, and enchantments."

Newton, according to his own account, was very inattentive to his studies and low in his class, but a great adept at kite flying, with paper lanterns attached to them, to terrify the country people, of a dark night, with the appearance of comets; and when sent to market with the produce of his mother's farm, was apt to neglect his business, and to ruminate at an inn over the laws of Kepler.

It is fair to infer that the stupidity attributed to many other distinguished geniuses may be similarly explained. This belief is enforced by the consideration that many, perhaps the majority, of the greatest thinkers of the world seemed dull, inane, and stupid to their neighbors, not only in childhood but through their whole lives. The brains as well as the muscles of men differ in the times of their growth. Of a dozen individuals of the same endowments and external conditions, some will ripen early, others late.

This is observed in colleges, where some who take the lead in everything make no farther progress in after life. They "strike twelve the first time." Others who, between fifteen and twenty-five are dullards, between twenty-five and forty develop great powers.

It is probable, however, that nearly all cases of apparent stupidity, in young geniuses, are to be explained by the want of circumstances favorable to the display of their peculiar powers, or to a lack of appreciation or discernment on the part of their friends. It is very difficult to find any college graduate of remarkable ability who did not, during his collegiate course, in some way manifest the germs of that ability, but there are many who fail in the prescribed routine of studies in the race for literary honors, who yet, in some department or other, do attain distinction. As compared with the world, the most liberal curriculum is narrow; to one avenue of distinction that college opens, the world opens ten. In order to learn the material of which a college class is made, it is necessary not only to look at the marks on the tutor's book and scan the prize list of the societies, but also to go out on the ball ground and down the river — we must mingle in the evening carousal and study the social life of the students in their rooms, or their walks, and in vacation.

Whether we regard those general considerations or not, the statistical fact remains that, in spite of the incompleteness of biographies, and the ignorance of parents and teachers, *a very considerable proportion of the greatest geniuses of the world are known to have been as remarkable in their precocity as in their genius; and in spite of this precocity were exceedingly long-lived.*

Great precocity, like great genius, is rare. Although I have known but few children whom fond parents did not at some time believe to be more or less superior to the average, yet I do not remember that I ever saw a very precocious child. There is in some children a petty and morbid *smartness* that is sometimes mistaken for precocity, but which in truth does not deserve that distinction.

The manifestation of genius in childhood is as normal and as healthful as its manifestation in maturity; but in childhood, as in extreme old age, the effects of overtaxing the powers are more severely felt than in maturity. Petty smartness is oftentimes a morbid symptom; it comes from a diseased brain, or from a brain in which a grave predisposition to disease exists. Such children may die young, whether they do or do not early exhibit unusual quickness.

The morbidly precocious soon wear themselves out, early find their level, and in after life are stupid or ordinary; the normally physiologically precocious go on from strength to strength, and do not reach their maximum until between thirty and forty; and live longer and are capable of working harder than those of average gifts. There have been noted and oft-quoted instances where the precocious geniuses have died in early manhood, or just at reaching the maximum of their strength between thirty and forty. The names of Pascal, Mozart, Keats, will be at once recalled. But we forget the infinite number who have died at the same age or earlier, and of the same diseases; but who neither in childhood nor in manhood exhibited any supe-

rior genius. The only method of arriving at the truth on the question is the one I have adopted; that is, to obtain the average longevity of a large number, who were known to have been greatly precocious, and compare it with the average longevity of other able men in the same departments.

Those who have not given special thought to this theme will be surprised to learn how early and how strikingly the genius of some of the greatest and longest-lived heroes was displayed. Leibnitz, at twelve, understood Latin authors well, and wrote a remarkable production. Gassendi, "the little doctor," preached at four; and at ten wrote an important discourse. Goethe, before ten, wrote in several languages. Meyerbeer, at five, played remarkably well on the piano. Niebuhr, at seven, was a prodigy; and at twelve had mastered eighteen languages. Michael Angelo at nineteen had attained a very high reputation. At twenty Calvin was a fully-fledged reformer, and at twenty-four published great works on Theology that have changed the destiny of the world. Jonathan Edwards, at ten, wrote a paper refuting the materiality of the soul; and at twelve was so amazingly precocious that it was predicted of him that he would become another Aristotle. At twenty Melancthon was so learned that Erasmus exclaimed: "My God! What expectations does not Philip Melancthon create!"

CAUSES OF THE EXCEPTIONAL LONGEVITY OF GREAT BRAIN-WORKERS.

The explanation of the surprising longevity of great brain-workers is quite complex. The readiest answer to the problem would be that brain-work is healthful; and that, therefore, the better the brain and the harder it is worked, the longer the life of its possessor. Such a solution would not be entirely true; and if it were true unqualifiedly, it would clear up but one side of the question.

The answer is to be found, not in any single consideration, but in many, as follows: —

1. *Great men usually come from healthy, long-lived ancestors.* Longevity is a correlated inheritance of genius. In order that a great man shall appear, a double line of tough, more or less vigorous fathers and mothers must fight in the struggle for existence and come out triumphant. However feeble the genius may be, his parents or grandparents are usually strong; or if not strong, are long-lived. Great men may have nervous if not insane relatives; but the nervous temperament holds on to life longer than any other temperament. The great man may himself be incapable of producing other great men; in him indeed the branch of the *race* to which he belongs may reach its consummation, but the stock out of which he is evolved must be strong, and usually contains latent if not active genius.[1] Longevity is, of course, hereditary, like all qualities or tendencies of organized life; and if great men come from long-lived stock, this fact is one most potent explanation of their exceptional longevity.

2. *A good constitution usually accompanies a good brain.* The cerebral and

[1] That intellectual qualities are subject to all the laws of hereditary descent, so far as we know these laws, has been fully established by the researches of Galton in England, and of myself in this country. I therefore assume the fact without argument.

muscular forces are correlated. This view, though hostile to the popular faith, is yet sound and supportable. A large and powerful brain in a small and feeble body is a monstrosity. "In monstrosities Nature reveals her secrets," says Goethe. When a specially small and delicate frame sustains a specially large and potent brain, men wonder, as at a tree bowed to the earth by the weight of its over-abundant fruit. Everywhere Nature is a slave to the necessity of correlation or correspondence of parts and organs with each other; and unless she heeds it, all organized life would become awry and misshapen. In all the animal realm, there is a general though not unvarying relation between the brain and the body of which it is a part and to which it ministers. An hundred great geniuses, chosen by chance, will be larger than a hundred dunces anywhere — will be broader, taller, and more weighty. In all lands, savage, semi-civilized, and enlightened, — the ruling orders, chiefs, sheiks, princes by might and mind, scientists, authors, orators and great merchants, weigh more than the slaves, peasants, and riff-raff over whom they rule; and bear the evidences of their superiority so clearly that they need no other insignia. In any band of workmen on a railway, you shall pick out the "boss," by his size alone; and be right four times out of five. Those monstrosities where genius is cabined in a small body, show the law by their very rarity.

3. *Great men who are permanently successful have correspondingly greater will than common men; and force of will is a potent element in determining longevity.* The one requisite for great success is "*grit;*" and, more uniformly than any other single quality or combination of qualities, it is found in those who attain high distinction. In the grand struggle for existence it is everywhere the stiff upper lip that conquers; the timid and the yielding are cowed and crushed, and over them rise the courageous and the strong. In certain special lines, as poetry and art, extraordinary gifts may, as it were, draw their possessor into fame with but little effort of his own; but the highest seats in the temples both of art and poetry are given only to those who have earned them by the excellence that comes from *consecutive effort*, which everywhere tests the vital power of the man. That longevity depends not a little on the will, no one will dispute. The whole subject of the relation of mental character to longevity is one of vast interest, and is too far-reaching to be here discussed; but this single point must be granted without argument, that of two men every way alike and similarly circumstanced, the one who has the greater courage and grit will be the longer-lived. One does not need to practice medicine long to learn that men die that might just as well live if they resolved to live; and that myriads who are invalids could become strong if they had the native or acquired will to vow that they would do so. Those who have no other quality favorable to life, whose bodily organs are nearly all diseased, to whom each day is a day of pain, who are beset by life-shortening influences, yet do live by grit alone. Races and the sexes illustrate this. The pluck of the Anglo-Saxon is shown as much on the sick-bed as in Wall Street or on the battle-field. During the late war I had chances enough to see how thoroughly the black man wilted under light sickness, and was slain by disease, over which his white

brother would have easily triumphed. When the negro feels the hand of disease pressing upon him, however gently, all his spirit leaves him. The great men of history are as much superior in their will-power to the average of their fellows, as are the races to which they belong to the inferior and uncivilized races. They live, for the same reason that they become famous. They obtain fame because they will not be obscure; they live because they will not die.

4. *Great men work more easily than ordinary men.* Their expenditure of force to accomplish great things is less plenteous than the expenditure of ordinary men to accomplish such things. A Liverpool draft-horse draws with ease a load at which a delicate racer might tug and strain without moving it. Ruskin is quite right when he says that the greatest work is done easily. The best action is the unconscious. It is the essence of genius to be automatic and spontaneous. The common mind cannot attain this spontaneity, or at any rate, only to a slight degree. Many a huckster or corner tradesman expends each day more force on work or worry than a Stewart or a Vanderbilt. It is notorious that Beecher's great sermons cost him only an hour's musing or so, while many country pastors work for a week over "efforts" that suggest no thought, except pity for the composer. Great genius is usually industrious, for it is its nature to be active; but its movements are easy, spontaneous, joyous. There are probably many school-boys who have exhausted themselves more over a prize composition than Shakespeare over "Hamlet," or Milton over the choicest passages in "Paradise Lost." At one time I acted as surgeon on a gunboat of the United States Navy on the blockade, which was under the command of a man who, I am sure, worried and exhausted himself more over that little craft than did Admiral Farragut over the entire squadron. When he died, shortly after the close of the war, I was requested by his widow to use my influence in procuring a pension for her. This I was able to do most conscientiously, for I knew that he had worn himself out in the service, although the vessel under his charge, while I was on board at least, never went into action, chased no blockade runner, and experienced not one moment of real peril.

5. *The advantages that belong to the brain-working orders in general.* Of these I have already spoken in some detail. The great brain-workers of the world have not all been rich; neither have they all been poor; some of them have lived a portion of their lives, but very few all their lives, in extreme want; and the majority have been most of the time surrounded with at least moderate comforts.

CAUSES OF THE GREAT LONGEVITY OF CLERGYMEN.

When, in 1867, I first called attention to the fact that clergymen were longer-lived than any other class of brain-workers, serious doubt was expressed whether there might not be some error in my statistics. So much had been said of the pernicious effects of mental labor, of the ill-health of brain-workers of all classes, and especially of clergymen, that very few were prepared to accept the statement that the clergy of this country and of England lived longer than any other class, except farmers, and very

naturally suspected a lurking fallacy. Other observers, who have since given special attention to the subject, have more than confirmed this conclusion, and have shown that clergymen are longer-lived than farmers.

The Rev. Josiah F. Tuttle, D. D., President of Wabash College, Indiana, has ascertained the ages of 2,442 clergymen — 600 Trinitarian Congregationalists, 317 Presbyterians, 231 Episcopalians, 268 Baptists, 208 Methodists, 166 Unitarians, etc., — and found that the average was "a little over 61 years." "Considerably over one half of the whole were over 60 years of age at their death; three fourths of the whole were over 50 years old at death; and seven eighths of the whole were over 40 years of age at death." Dr. Tuttle found that the average age at death of 408 individuals (not clergymen), and who had died over 21 years of age, was a little over 51 years. This result pretty nearly corresponds with mine.

But by far the more thorough investigation on this subject, and one that must fully settle the question for all minds over whom facts have any influence, has been recently made by Rev. J. M. Sherwood, formerly editor of "Hours at Home," and now Secretary of the "Society for Promoting Life Insurance among Clergymen." This gentleman has labored long and patiently in this department, and has ascertained that the average age of our ministers at death is sixty-four. The report (I quote from Document No. 3 of the Society) states: "this is four years more than the longevity of the most favored (?) class; ten years more than in the other professions: and from twelve to nineteen years above that of mechanics, artisans, miners, operatives, and the like."

These conclusions differ slightly from mine, but the difference is in favor of clergymen. Mr. Sherwood informs me that he had obtained the average from a list of ten thousand clergymen, whose ages at death he ascertained at great labor by consulting "the minutes of ecclesiastical bodies for thirty years past, the catalogues of theological seminaries, Wilson's 'Historical Almanac,' Dr. Sprague's 'Annals of the American Pulpit,' biographical dictionaries, the files of religious journals, etc."

A list of ten thousand is sufficient and more than sufficient for a generalization; for the second five thousand did nothing more than confirm the result obtained by the first. It is fair and necessary to infer that if the list were extended to ten, twenty, or even one hundred thousand, the average would be found about the same.

In England, also, clergymen live to a greater age than any other class. According to the report of the Secretary of the Clerical Mutual Life Assurance Society, the mortality is less than that in twenty other companies by a very important percentage.

CAUSES OF THE EXCEPTIONAL LONGEVITY OF CLERGYMEN.

The reasons why clergymen are longer-lived than any other class of brain-workers are these: —

1. *Their callings admit of a wide variety of toil.* — In their manifold duties their whole nature is exercised — not only brain and muscle in general, but all, or nearly all, the faculties of the brain — the religious,

moral, and emotional nature, as well as the reason. Public speaking, when not carried to the extreme of exhaustion, is the best form of gymnastics that is known; it exercises every inch of a man, from the highest regions of the brain to the smallest muscle. In his public ministrations, in his pastoral calls, in his study, in his business arrangements, in his general reading, the pastor exercises more widely and variously than any other calling.

2. *Comparative freedom from financial anxiety.* — The average income of the clergymen of the leading denominations of this country in active service as pastors of churches (including salary, house rent, wedding fees, donations, etc.), is between $800 and $1,000, which is probable not very much smaller than the net income of all other professional classes. Further, the income of clergymen in active service is collected and paid with greater certainty and regularity, and less labor of collection on their part than the income of any other class except government officials. Then, again, their income, whether small or great, comes at once, as soon as they enter their profession, and is not, as with other callings, built up by slow growth.

Worry is the one great shortener of life under civilization; and of all forms of worry, financial is the most frequent, and for ordinary minds, the most distressing. Merchants now make, always have made, and probably always will make, most of the money of the world; but business is attended with so much risk and uncertainty, and consequent worry, that merchants die sooner than clergymen, and several years sooner than physicians and lawyers.

By what I here say, I do not mean to give the impression that clergymen are properly paid; for it is thoroughly true, as was once remarked by a certain political economist: "We pay best, — 1st. Those who destroy us — *generals.* 2d. Those who cheat us — *politicians and quacks.* 3d. Those who amuse us — *actors and singers;* and least of all, those who instruct us."

The average income of all classes in this country is small — about $700 a year — and for the laboring classes not more than half that sum; and if the same efforts were made to obtain the details of the financial history of every family in the land, as has been done in the case of clergymen, there would be some very dreary reading.

3. *Their superior mental endowments.* — The law which I derive from the study of vital statistics is, that other conditions being the same, the greater and richer the brain, the greater the longevity.

Now I speak calmly and discriminately, and from a careful comparison of biographical data, when I say that the clergymen of this country — as represented by the Congregational, Presbyterian, and Unitarian denominations — have presented a higher average of the higher kinds of ability than any other equally large class, of any age or section, of recorded history.

During the past fifteen years, there has been a tendency which is now rapidly increasing, for the best endowed and best cultured minds of our colleges to enter other professions, and the ministry has been losing while medicine, business, and science, have been gaining.

4. *Their superior temperance and morality.* — Clergymen are more regular

in their sleep, meals, and exercise, than any other intellectual class; and are less exposed to injurious influences and contagious diseases than some other occupations. Very rarely, indeed, does a clergyman become grossly intemperate, or addicted to gambling, or to the exclusive and injurious pursuit of any animal pleasures.[1]

[1] Against the statements in regard to the superior morality of clergymen, I must, course, make the concession that they are occasionally found guilty of sexual irregularities. The number of clergymen, more or less prominent, who, within my own knowledge have been convicted of serious sins in this direction, is quite large; and it is, at first thought, a puzzling fact in psychology, that those who are so upright in other respects should so often yield to the temptations that come through the sexual appetite. My explanation is that clergymen live largely in a world of emotion, and the emotions excite and stimulate each other. Even the noblest and holiest feelings are liable to arouse the lowest animal passions. Religious insanity often accompanies sexual insanity; and in our asylums, those who talk wildly of Jesus Christ frequently need strait-jackets to keep them from self-abuse. Among the sane and the healthy, benevolence, large-heartedness, and sincere piety, even, may, in a nature not fitly balanced by strong reason and will, open the doors of sexual vice.

Those tender, confiding, spiritual recluses who thus fall into sin are called hypocrites, — when, had they been insincere, they would not have sinned, for they would have been less tempted; their faith is their ruin; they fall through their very virtues

Physicians are far more tempted than clergymen, and are in other respects not so moral; but they rarely disturb the peace of families.